Remarks

Claims 14 - 30 are pending. Favorable reconsideration is respectfully requested.

Claim 22 has been amended to depend from claim 15 and therefore is no longer a substantial duplicate of claim 21.

Claims 14, 16 - 20, 24, and 26 - 28 have been rejected under 35 USC §103(a) over Shores U.S. 5,543,171 ("*Shores*"). Applicants' respectfully traverse this rejection.

The present invention pertains to siloxane polymers which are easily prepared and which readily disperse in water. The polymers are prepared from a siloxane-containing intermediate reactive with isocyanate groups by reacting with a di- or polyisocyanate in a stoichiometric amount or less. The reactants must contain less than 2000 ppm water.

Shores pertains to siloxane polymers containing anionic groups selected from carboxylic acid, carboxylic acid anhydride, sulfonic acid, or phosphonic acid groups, by reacting an isocyanate-reactive siloxane polymer with a decided excess of isocyanate groups, and reacting also, in the same or in a subsequent step, with an isocyanate-reactive molecule having one of the aforesaid anionic groups.

Shores does not discuss the criticality of low water content, and actually teaches that chain extension of his polymer can be performed in aqueous solution.

Applicants have surprisingly found that if the water content is not kept below 2000 ppm, distinctly different products are formed, which are not dispersible in water. For example, in the Comparative Example, at only 2350 ppm water, an oil was formed which did not disperse, unlike the very similar Example 1, which was dispersible.

Shores does not teach or suggest this result, in particular as he specifically incorporates anionic groups to create water solubility or dispersibility. Since water is expected to react with isocyanates to generate polar urea groups, which would be expected to enhance rather than lower water solubility/dispersibility, Applicants' results are quite surprising.

Claims 15, 21 - 23, 25 and 29 have been indicated as allowable, for the reasons stated on page 4 of the Office Action. Claim 14, and thus the claims dependent thereon, have been amended to recite that the isocyanate stoichiometry is such that the mol ratio of isocyanate groups to isocyanate reactive groups is 1.0 mol/mol or less. Applicants thus believe that claims 14, 16 - 20, 24, and 26 - 28 should now be allowable as well.

New claim 30 has been added to particularly point out and distinctly claim polymers prepared substantially only from the reactants specified in the last paragraph. None of these reactants contain any ionic groups, and thus do not correlate in any way to the copolymers of *Shores*, which require such groups to provide water solubility/dispersibility. Claim 30 requires at least one of the compounds (7). These polymers correspond to those of Examples 2 and higher.

Applicants wish to note that they believe that the rationale for lowering water content as per the cited Weichmann reference (U.S. 5,229,454) ("*Weichmann*") is not really relevant to the present situation. In *Weichmann*, isocyanate-terminated prepolymers are used as moisture-curing caulks or sealants. Such caulks and sealants contain a catalyst which accelerates the reaction of water with isocyanate. Without a catalyst, this reaction is very slow unless the composition is heated. Unlike *Weichmann*, however, the subject invention polymers are not designed to be moisture-curable sealants which require considerable storage stability, but rather are used to prepare aqueous emulsions, where, following polymer preparation, an enormous amount of water (relative to the amount required for moisture cure) will be present. In *Weichmann*, the water does not interfere with polymer preparation *per se*. However, in the subject application, the presence of even relatively small amounts of water (>2000 ppm)

results in an entirely different polymer, one which is no longer dispersible. *Weichmann* does not suggest that such would be the case.

It should also be noted that the polymer of the comparative example still appears to be a linear polymer, despite the presence of water, i.e. no substantial amount of crosslinking takes place, if at all. The reason is that water chain extends the polymers by forming urea groups. Note that the polymer is an oil, characteristic of linear polysiloxanes, and not a solid or waxy product, which would indicate crosslinking. Why the minimization of water allows for dispersible polymers whereas larger amounts do not is unknown, and quite surprising.

Applicants submit that the claims are now in condition for Allowance, and respectfully request a Notice to that effect. If the Examiner believes that further discussion will advance the prosecution of the Application, the Examiner is highly encouraged to telephone Applicants' attorney at the number given below.

Please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

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